Work Orde	er ID 91890 1:05:33 PM		*918	390*	· <del></del>					Page 1
Revision ID:	D3016-041 Seat Frame Assembly		Accept	*N900	<b>040</b>	100	<b>)*</b> s	etup Star Stoj	1 1	S1* S2*
	10/29/12 Start Qty:	•		Cust Item I Customer:	D:				IN	<b>.</b> 7/
Approvals:	Process Plan: ML3	Date: 12-10-			ate:		R	tun Star Sto	" <b> \</b>	R1* R2*
Sequence ID/ Work Center II	Operation Description		Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr									
D3016	RevA / DEO A-1									
*100*  *100*  Large Fab  Large Fab	Large Fab  N 1- 2 3 D	A/R 4130 rod Batch:	0.00 Id as per Dwg D3016 using v -041 and D3021-041 in seat					<u>@</u>	13-1-0	<u>H-</u>
*110 *110*	QC9- Inspect	visual per QSI004- Fusion Weld						1,2-01.9	p4	<b>DA</b> S <b>09</b>

Quality Control

			DQA:	Date:	
ICR:	Yes / N	o WORK ORDER NON-CONFORMANCE / UPDATE			
	•	•		_	

										QA Closed:	Date	:
Work Ord	er:					DISPOSITION			AGAINST DE	PARTMENT	/PROCESS	
Part I						Rework Scrap Use-as-is Work Order Update	The	Skid-tube  Machining moforming Large Fab	Crosstube Small Fab Finishing Composite		Water Jet d. Eng. Coor. re/Packaging Supplier	Engineering Quality Other
Root	,				Descri	ption of work order update	Initial	A	ction	Sign &		
Cause		Date	Step	Qty		or Non-conformance	Chief En	g Des	cription	Date	Verification	QC Inspector
Doc/Data												
Equip/Tooling												
Operator												
Material ,										:		
Setup					_							
Other	Ŀ				-						1	
Process												
Supplier	Ш		ļ	Ì								
Training												
Unapproved	1		<u> </u>	<u> </u>			<u> </u>					
						F	AULT CAT	EGORY				
Landi	ing (	1			_	General			_	1	_	<del>-</del>
		Bending			<u> </u>	Bend	Grain		<u> </u>	Ovalized	<u> </u>	Pressure/Forced
	_	Centre No	ot Conce	ntric to	o/s	BOM/Route	Hardv			Over/Under		Temperature/Cure
	<u> </u>	Cracks				Broken/Damaged	<b>—</b>	ctior. Incomplete		Part Incorre	<b>⊢</b>	Weld
	<u></u>	Crushed/	Crimped.	*	_	Burrs	<del></del>	ctions Incomplete	/Unclear	Part Lost/M		Wrong Stock Pulled
	<del></del>	Cuffs	*			Contamination	$\vdash$	tenance	<u> </u>	Part Moved		
		Heat Trea			_	Countersink	Misla		<u> </u>	Positioned \		<del></del> 1
	Ŀ	Inspectio		Tube	·  _	Cut Too Short	Misre			Power Loss,	/Surge	Other
	<u> </u>	Ripples in				Drill Holes	Offse					
		Torque W			n	Drawing	$\vdash$	f Calibration				
	$\vdash$	Turning S	-		<u> </u>	Finish	<del></del>	f Sequence				
1	1	lWave/Tw	vist in Tul	be	ļ	IFolio	I lOutsi	de Dimensions				

0.00

Memo

Quality Control

												DQA:	Da	te:	
NCR:	Yes	/ No				WORK ORDER NON-C	O	NFORM	MANCE / UP	DATE		•		•	
												QA Closed:	Da	te:	
Work Ord	or.					DISPOSITION				AGAINST D	ŧΕ	PARTMENT	PROCESS		
WOIK OIG	-					Rework	1		Skid-tube	Crosstube	٦		Water Jet		Engineering
Part I	No.					Scrap		1	Machining	Small Fab	┪	Pro	d. Eng. Coor.	$\vdash$	Quality
	•					Use-as-is	1	1	noforming	Finishing	┪		e/Packaging	П	Other
NCR I	۷o.					Work Order Update	1	1	Large Fab	Composite	٦		Supplier	-	
	•										_				
Root					Descri	ption of work order update		Initial	Ac	tion	Т	Sign &			
Cause		Date	Step	Qty	(	or Non-conformance	Ch	nief Eng	Desc	ription		Date	Verificatio	n	QC Inspector
Doc/Data															
Equip/Tooling	Ш														
Operator	Ш										1				
Material	Ш														
Setup	Ш										ı				·
Other	•		-				ļ								
Process															
Supplier									:						
Training															
Unapproved														!	
						F/	AUL	T CATE	GORY						
Landi	ng G	iear				General		_		_		_			_
		Bending				Bend		Grain				Ovalized			Pressure/Forced
		Centre No	ot Concer	ntric to	o/s	BOM/Route		Hardwa	re			Over/Under	tolerance		Temperature/Cure
		Cracks				Broken/Damaged		Inspecti	or Incomplete	Γ		Part Incorred	ct		Weld
		Crushed/0	Crimped.			Burrs		Instruct	ions Incomplete/	'Unclear		Part Lost/Mi	ssing		Wrong Stock Pulled
		Cuffs		:		Contamination		Mainte	nance		$\neg$	Part Moved			_

Mislabeled

Out of Calibration

Out of Sequence

Outside Dimensions

Misread

Offset

Positioned Wrong

Power Loss/Surge

Other

Ripples in Bend

Turning Sequence

Wave/Twist in Tube

Heat Treat

Inspection Strip in Tube

Torque Waves in Extrusion

Countersink

Cut Too Short

Drill Holes

Drawing

Finish

Folio

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Work Orde October-19-12		890		*918	R90*							Page 3
Item ID: Revision ID: Item Name:	D3016-041 Seat Frame As	ssembly		Accept	*N900	<b>040</b>	100	)* s	etup	Start Stop	ı Vı	S1* S2*
Start Date: Required Date: Reference:	10/29/12 11/09/12	Start Qty: 1.00 Req'd Qty: 1.00	*1* *1*		Cust Item I Customer:	D:						
Approvals:	Process Pla	an:	Date:	Tooling: SPC (Y/N):		ate:		F	Run	Start Stop	171	R1* R2*
Sequence ID/ Work Center I 150 *150* Packaging Packaging	<b>D</b>	Operation Description Identify as per dwg & St	ock Location G A	Set Up/ Run Hours 0.00	Tool ID	Tool#	Plan Code	Accept Qty	Rej Qty		Reject Number	Insp. Stamp
160 *160* QC		QC21- Final Inspection  Memo	- Work Order Release	0.00					10	1	129	

Quality Control

N(3-0+28

		DQA:	Date:	
ICR: Yes / No	WORK ORDER NON-CONFORMANCE / UPDATE			

										QA Closed:	Date	e:
Work Orde	r:				DISPOSITION				AGAINST	DEPARTMENT	PROCESS	
Part N NCR N	0.				Rework Scrap Use-as-is Work Order Update		N Therm	Skid-tube  Machining  oforming  Large Fab	Crosstube Small Fab Finishing Composite	Rec/Sto	Water Jet d. Eng. Coor. re/Packaging Supplier	Engineering Quality Other
Root		ľ		Descr	iption of work order update	Ini	tial	Act	tion	Sign &		
Cause	Date	Step	Qty		or Non-conformance	Chie	f Eng	Descr	ription	Date	Verification	QC Inspector
Doc/Data Equip/Tooling Operator												
Material												
Setup												
Other						ļ						
Process												
Supplier												
Training												
Unapproved		<u> </u>										
						FAULT	CATEG	ORY				
Landin	g Gear				General	,					-	<del></del>
	Bending				Bend	<del></del>	rain		,	Ovalized		Pressure/Forced
	Centre No	ot Conce	ntric to	o/s	BOM/Route	Щн	ardwar	e .		Over/Under	tolerance	Temperature/Cure
. [	Cracks			L	Broken/Damaged	$\vdash$		on Incomplete		Part Incorre	<b>}</b>	Weld
	Crushed/	Crimped.		<u> </u>	Burrs			ons Incomplete/	Unclear	Part Lost/M	issing	Wrong Stock Pulled
	Cuffs				Contamination		/lainter			Part Moved		
·	Heat Trea			<u> </u>	Countersink		1islabel			Positioned \	· ·	
1	Inspection		Tube	_	Cut Too Short	$\mathbf{H}$	1isread			Power Loss	Surge	Other
ļ	Ripples in			L	Drill Holes	$\vdash$	ffset					
ļ	Torque W			n	Drawing	$\vdash$		alibration				
	Turning S	equence			Finish	Ц٥	ut of Se	equence	,	<u> </u>		
Ī	Wave/Tw	ist in Tub	oe .	1	Folio	I lo	utside	Dimensions				

# **Picklist Print**

October-19-12 1:05:32 PM

Work Order ID:

91890

Parent Item:

D3016-041

Parent Item Name:

Seat Frame Assembly

**Start Date:** 10/29/12

Required Date: 11/09/12

Page 1

Start Qty: 1.00

Required Qty: 1.00

	placement m ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
<b>M4130NT0.750W.049</b> 4130 RD Tube .750 x.049W		Purchased	No			100	f	183.2100	4.3	4.5263158 EL /3	3-1-22		
				<b>Location</b>		Loc Qty	<u>L</u> c	oc Code					
				MAT033		183.21							
				121	025	7.01							
				122		40							
				122	812 339	58.2				41/-			
				123	339>	78		<b>-</b>		<del>9</del> ·			
<b>M4130NT0.500W.049</b> 4130 RD Tube .500 x.049W		Purchased	No			100	f	71.6830	4.3	4.5263158 A / 3	1-27		
				<b>Location</b>	•	Loc Oty	L	oc Code					
				MAT032		71.683				<u></u>			
				<u>121</u>	025	20.85							
				$\boxed{123}$	339	50.833			<u> 4.</u>	16			
<b>M4130NT1.000W.120</b> 4130 RD Tube 1.00 x .120wall		Purchased	No			100	$\mathbf{f}_{\perp}$	56.6400	1.5	1.5789474 [[]	1 3 <i>-1-26</i>	<u>_</u>	
				<b>Location</b>		Loc Oty	<u>L</u>	oc Code					
				MAT033		56.64							
				_117	656	18.69				· ————			
					973	37.95			_/0	18			
<b>D3016-17</b> Gusset		Manufactured	No			100	Each	12.0000	2	$\mathcal{Q}^2$	13-1-2	4.	
				Location		Loc Qty	<u>L</u>	oc Code					
				WA021		12	<del></del>						•
				708	372	6							
					709>	6				7			

											DQA:	Da	ite:	
NCR: Y	es / No				WORK ORDER NON-O	100	NFORM	<b>JANCE / UP</b>	DATE		·	· · · · · · · · · · · · · · · · · · ·		
											QA Closed:	Da	ite:	
Work Orde					DISPOSITION			•	AGAINST	DE	PARTMENT	PROCESS		
Work Orde	:I				Rework	7		Skid-tube	Crosstube	_		Water Jet		Engineering
Part N	lo				Scrap	1		Machining	Small Fab	_	Pro	d. Eng. Coor.	$\vdash$	Quality
1 10/61					Use-as-is		1	noforming	Finishing		1	e/Packaging	-	Other
NCR N	lo.				Work Order Update	1	1	Large Fab	Composite		,	Supplier	$\blacksquare$	
					,	_	Į		· '					
Root				Descri	ption of work order update		Initial	Ad	ction		Sign &			
Cause	Date	Step	Qty	(	or Non-conformance	Cr	nief Eng	Desc	cription		Date	Verification	n	QC Inspector
Doc/Data												•		
Equip/Tooling														
Operator											1			
Material														
Setup	_													
Other														
Process														
Supplier						ŀ								
Training														
Unapproved											ļ	<u> </u>		
						AUI	LT CATE	GORY						
Landir	ng Gear				General		7				1		_	1 .
	Bending				Bend	$\vdash$	Grain			L	Ovalized		<u> </u>	Pressure/Forced
		Not Conce	ntric to (	o/s	BOM/Route	<u>_</u>	Hardwa			L	Over/Under			Temperature/Cure
	Cracks				Broken/Damaged	<u> </u>	<b>-</b> 1 '	or Incomplete		L	Part Incorre		$\vdash$	Weld
		/Crimped			Burrs	<u></u>	4	ions Incomplete,	/Unclear		Part Lost/M	issing		Wrong Stock Pulled
1	Cuffs			. [	Contamination		Mainte	nance			Part Moved			

Mislabeled

Out of Calibration

Out of Sequence

Outside Dimensions

Misread

Offset

Countersink

Cut Too Short

Drill Holes

Drawing

Finish

Folio

Positioned Wrong

Power Loss/Surge

Other

Ripples in Bend

Turning Sequence

Wave/Twist in Tube

Heat Treat

Inspection Strip in Tube

Torque Waves in Extrusion

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

October-19-12 1:05:32 PM

Work Order ID: Parent Item: Parent Item Name:	91890 D3016-041 Seat Frame Assembly		·				Date: 10/29/12 Qty: 1.00	Required Date: 11/09/12 Required Qty: 1.00
D3016-13 Bracket	Manufactured	No		100	Each	12.0000	2 	2 
·			Location WA 86701	<u>Loc Qty</u> 12 4		Loc Code		_ ·
<b>D3016-15</b> Gusset	Manufactured	No	90292	100	Each	15.0000	2 2 	2/3-/-24
			Location WA 86648 90616	<u>Loc Oty</u> 15 6 9		Loc Code		 
<b>D3020-1</b> Fitting	Manufactured	No		100	Each	16.0000	4 	4/3-1-22
			Location WA 90639 <b>86801</b>	Loc Oty 16 16		Loc Code		- -

											DQA:	Date	e:
NCR:	Yes	/ No				WORK ORDER NON-C	100	<b>VFORM</b>	MANCE / UP	DATE			
											QA Closed:	Date	j:
Work Ord	er.					DISPOSITION				AGAINST DE	PARTMENT	/PROCESS	
Part !	_ No					Rework Scrap Use-as-is Work Order Update		Thern	Skid-tube  Machining  noforming  Large Fab	Crosstube Small Fab Finishing Composite	1	Water Jet d. Eng. Coor. re/Packaging Supplier	Engineering Quality Other
Root					Descri	ption of work order update		Initial	Act	tion	Sign &		
Cause		Date	Step	Qty	(	or Non-conformance	Ch	nief Eng	Desci	ription	Date	Verification	QC Inspector
Doc/Data													
Equip/Tooling												•	
Operator	Ш						ļ						
Material	Ш												
Setup													
Other													
Process												1	
Supplier	П						Ì						
Training	П												
Unapproved													
						F	AUL	LT CATE	GORY				
Landi	ing G	ear				General		_			_	_	
i		Bending				Bend	L	Grain			Ovalized		Pressure/Forced
		Centre No	ot Concer	ntric to	o/s	BOM/Route		Hardwa	re		Over/Under	tolerance	Temperature/Cure
:		Cracks				Broken/Damaged		Inspect	ior Incomplete		Part Incorre	ct [	Weld
		Crushed/	Crimped.			Burrs		Instruct	ions Incomplete/	Unclear	Part Lost/M	issing	Wrong Stock Pulled
	$\Box$	Cuffs				Contamination		Mainte	enance		Part Moved	_	
		Heat Trea	it			Countersink		Mislabe	eled		Positioned \	<b>N</b> rong	

Misread

Out of Calibration

Out of Sequence

Outside Dimensions

Offset

Power Loss/Surge

Other

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Ripples in Bend

Turning Sequence

Wave/Twist in Tube

Inspection Strip in Tube

Torque Waves in Extrusion

Cut Too Short

Drill Holes

Drawing

Finish

Folio





	DESIGN	'cp	DRAWN BY	DART AEROSPACE HAWKESBURY, ONTARIO, CANA	LTD	
1	CHECK	ED ,	APPROVED	DRAWING NO.		REV. A
		4	#	D3016	SHEET	1 OF 3
	DATE			TITLE		SCALE
	01.0	5.18		SEAT FRAME ASSEMBLY		NTS
	Α		01.05.18	NEW ISSUE		

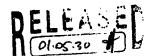
QTY	PART NUMBER	DESCRIPTION	MATERIAL				
Х	D3016-041	SEAT FRAME ASSEMBLY	N/A				
1	D3016-1	TUBE	AISI 4130N TUBE, Ø0.75 DIA x 0.049 WALL (M4130N-T0750W049)				
2	D3016-3	TUBE	AISI 4130N TUBE, Ø0.75 DIA x 0.049 WALL (M4130N-T0750W049)				
1	D3016-5	TUBE	AISI 4130N TUBE, Ø0.50 DIA x 0.049 WALL (M4130N-T0500W049)				
2	D3016-7	TUBE	AISI 4130N TUBE, Ø0.50 DIA x 0.049 WALL (M4130N-T0500W049)				
1	D3016-9	SADDLE	AISI 4130N TUBE, Ø1.00 DIA x 0.120 WALL (M4130N-T1000W120)				
1	D3016-11	SADDLE	AISI 4130N TUBE, Ø1.00 DIA x 0.120 WALL (M4130N-T1000W120)				
1	D3016-13	BRACKET	AISI 4130N SHEET, 18 GAUGE (M4130N-S049)				
1	D3016-15	GUSSET	AISI 4130N SHEET, 18 GAUGE (M4130N-S049)				
1	D3016-17	GUSSET	AISI 4130N SHEET, 18 GAUGE (M4130N-S049)				
. 2	D3020-1	FITTING	N/A				

## **NOTES**

- 1) WELD PER DART QSI 004
- ON SHEET METAL PARTS, BREAK ALL UNMARKED CORNERS 0.020-0.040 2)
- FINISH: POWDER COAT GREY SANDTEX (REF. 4.3.5.6) PER DART QSI 005 4.3 3)
- 4) ALL DIMENSIONS ARE IN INCHES
- TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED

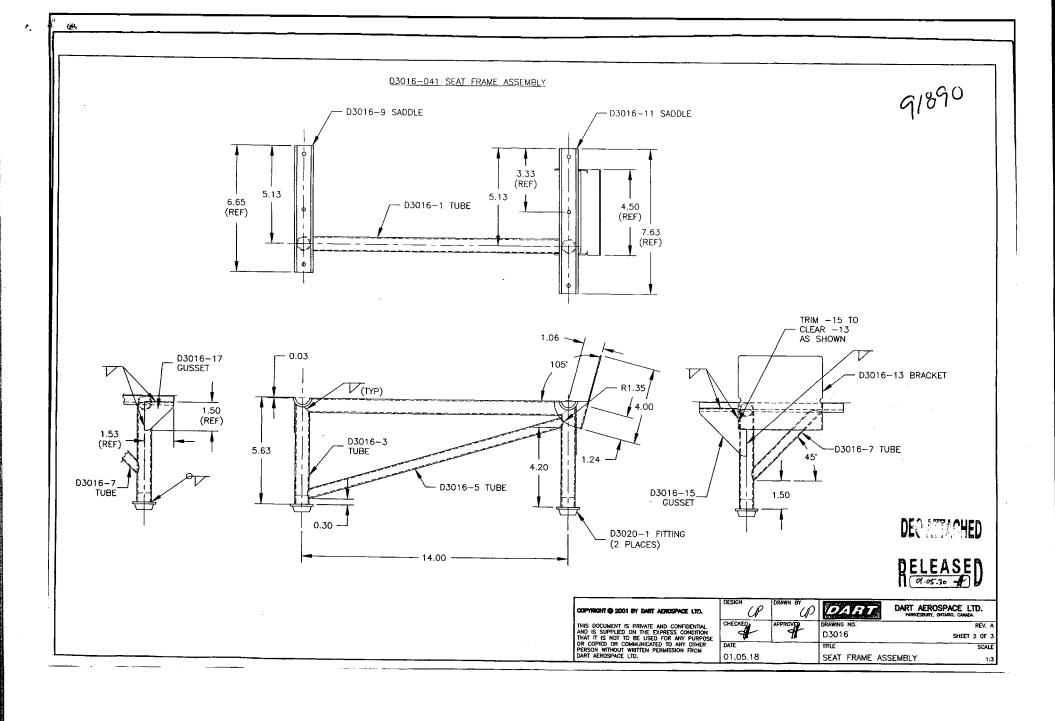
JECT TO AMENDMENT FIROLLED COPY A 1 69 MCZ

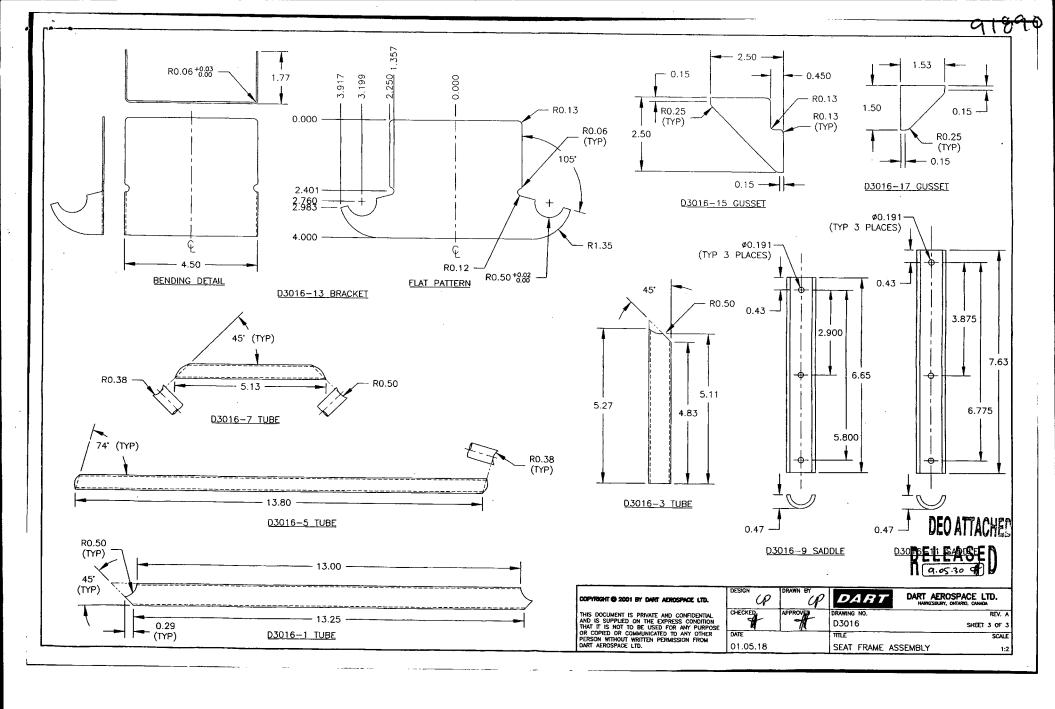
DEO ATTACHED



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DRAWING NO.	TITLE	TITLE								
				REV. A	DARTAE	ROSPACE LTI	D   D.E.O. 1	NO.	SHEET NO.	SCALE
D3016	SEAT FRAM	SEAT FRAME ASSEMBLY			ENGINE	<b>ENGINEERING ORDER</b>		S-A-1	SHEET 1 OF 1	NTS
DRAWN 🛔		CHECKED	U	7	MFG. APPR.	R	APPROVED	W	DE APPR.	
DATE 10.0	)1.29	DATE	10:	01.75	DATE	10,01.29	DATE	10.01.29	DATE 10.01-29	

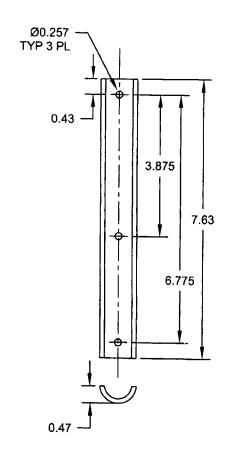
#### PURPOSE:

TO REVISE D3016-11 SADDLE'S HOLE SIZES

### CHANGE:

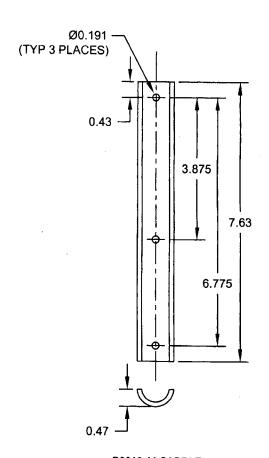
DETAIL D3016-11 SADDLE (SHEET 3): Ø0.257 TYP 3 PL WAS Ø0.191 (TYP 3 PLACES) AS SHOWN:

IS:



**D3016-11 SADDLE** 

WAS:



#### **D3016-11 SADDLE**

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